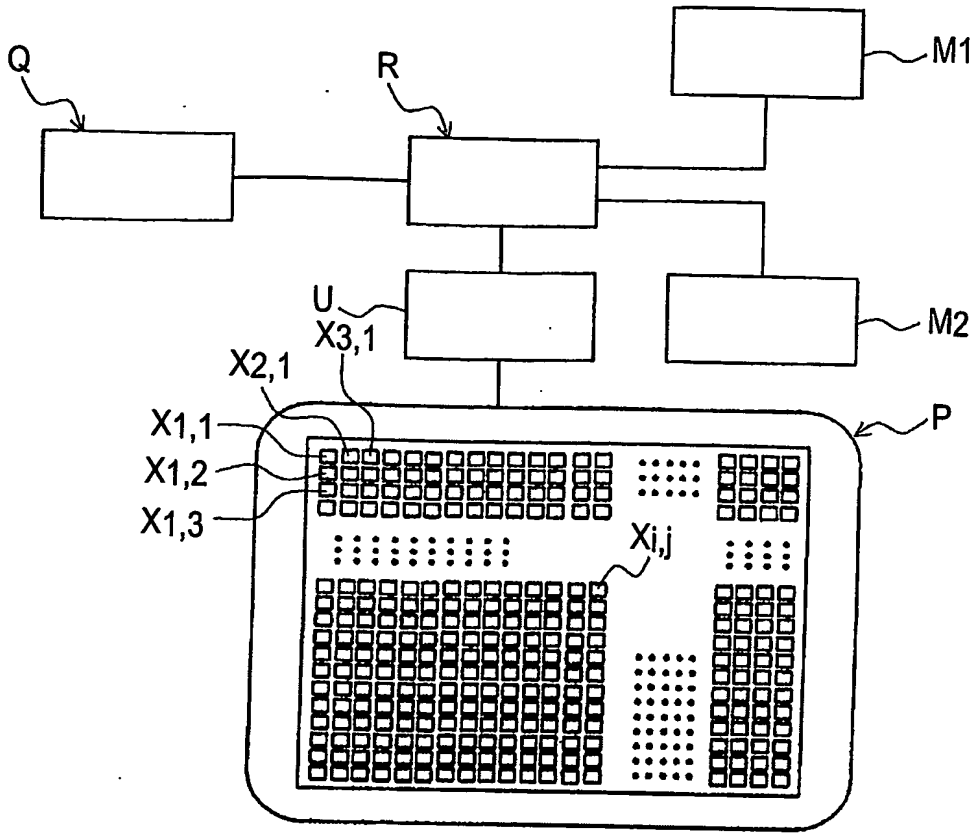
(a)


Q
R
M1
U
X3,1
M2
X2,1
X1,1
X1,2
X1,3
P
Xi,j

(b)

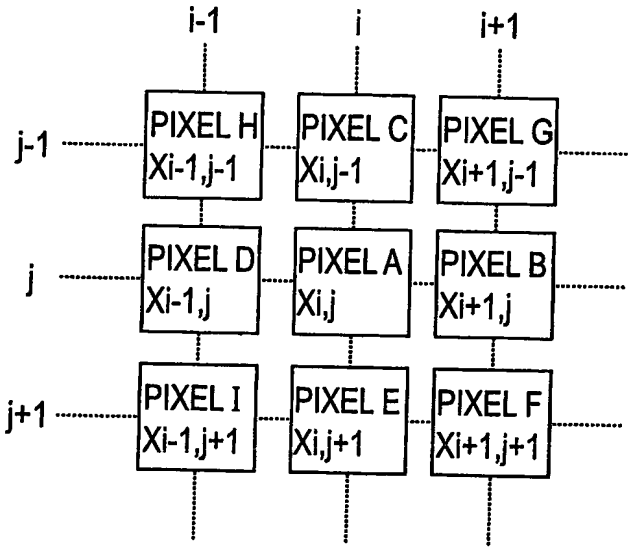

i-1
i
i+1
j-1
PIXEL H
Xi-1,j-1
PIXEL C
Xi,j-1
PIXEL G
Xi+1,j-1
j
PIXEL D
Xi-1,j
PIXEL A
Xi,j
PIXEL B
Xi+1,j
j+1
PIXEL I
Xi-1,j+1
PIXEL E
Xi,j+1
PIXEL F
Xi+1,j+1

FIG. 1

	GRADATION SIGNAL	REFLECTANCE OF PIXEL A
GRADATION 1	V_1 = -10V	5%
GRADATION 2	V_2 = 0.7V	9%
GRADATION 3	V_3 = 1.3V	13%
GRADATION 4	V_4 = 2V	17%
⋮	⋮	⋮
GRADATION 14	V_{14} = 8.7V	57%
GRADATION 15	V_{15} = 9.4V	61%
GRADATION 16	V_{16} = 10V	65%

FIG.2

	A B C D E	GRADATION SIGNAL OF PIXEL A	REFLECTANCE OF PIXEL A
GRADATION 1	1 1 1 1 1	V1	5%
GRADATION 2	2 2 2 2 2	V2	9%
GRADATION 3	3 3 3 3 3	V3	13%
GRADATION 4	4 4 4 4 4	V4	17%
	⋮		⋮
GRADATION 14	14 14 14 14 14	V14	57%
GRADATION 15	15 15 15 15 15	V15	61%
GRADATION 16	16 16 16 16 16	V16	65%

FIG.3

(a) GRADATION 4 AT PIXEL A

	A	B	C	D	E	REFLECTANCE	GRADATION SIGNAL
K11	4	1	1	1	1	17%	V4
	4	1	1	1	2	17%	V4
	4	1	1	2	2	17%	V4
	4	1	2	2	2	17%	V4
	4	2	2	2	2	17%	V4
	⋮					⋮	⋮
	4	7	7	7	7	17%	V4
	4	7	7	7	8	17%	V4
	4	7	7	8	8	16.9%	V4
	4	7	8	8	8	16.9%	V4
	4	8	8	8	8	16.8%	V4
	⋮					⋮	⋮
K12	4	15	15	15	15	15.2%	V4'
	4	15	15	15	16	15.2%	V4'
	4	15	15	16	16	15.1%	V4'
	4	15	16	16	16	15%	V4'
	4	16	16	16	16	15%	V4'

(b) GRADATION 8 AT PIXEL A

	A	B	C	D	E	REFLECTANCE	GRADATION SIGNAL
K21	8	1	1	1	1	34.2%	V8'
	8	1	1	1	2	34.1%	V8'
	8	1	1	2	2	34.0%	V8'
	8	1	2	2	2	34.0%	V8'
	8	2	2	2	2	33.8%	V8'
	⋮					⋮	⋮
K22	8	7	7	7	7	33%	V8
	8	7	7	7	8	33%	V8
	8	7	7	8	8	33%	V8
	8	7	8	8	8	33%	V8
	8	8	8	8	8	33%	V8
	⋮					⋮	⋮
K23	8	15	15	15	15	31.4%	V8"
	8	15	15	15	16	31.5%	V8"
	8	15	15	16	16	31.5%	V8"
	8	15	16	16	16	31.6%	V8"
	8	16	16	16	16	31.6%	V8"

FIG.4

(a) GRADATION 12 AT PIXEL A

	A	B	C	D	E	REFLECTANCE	GRADATION SIGNAL
K31	12	1	1	1	1	50.6%	V12'
	12	1	1	1	2	50.5%	V12'
	12	1	1	2	2	50.5%	V12'
	12	1	2	2	2	50.4%	V12'
	12	2	2	2	2	50.4%	V12'
	⋮					⋮	⋮
K32	12	7	7	7	7	49%	V12
	12	7	7	7	8	49%	V12
	12	7	7	8	8	49%	V12
	12	7	8	8	8	49%	V12
	12	8	8	8	8	49%	V12
	⋮					⋮	⋮
	12	15	15	15	15	48.9%	V12
	12	15	15	15	16	48.8%	V12
	12	15	15	16	16	48.8%	V12
	12	15	16	16	16	48.8%	V12
	12	16	16	16	16	48.7%	V12

(b) GRADATION 16 AT PIXEL A

	A	B	C	D	E	REFLECTANCE	GRADATION SIGNAL
K41	16	1	1	1	1	67.0%	V16'
	16	1	1	1	2	67.0%	V16'
	16	1	1	2	2	67.0%	V16'
	16	1	2	2	2	66.8%	V16'
	16	2	2	2	2	66.8%	V16'
	⋮					⋮	⋮
K42	16	7	7	7	7	65.8%	V16
	16	7	7	7	8	65.7%	V16
	16	7	7	8	8	65.7%	V16
	16	7	8	8	8	65.6%	V16
	16	8	8	8	8	65.6%	V16
	⋮					⋮	⋮
	16	15	15	15	15	65%	V16
	16	15	15	15	16	65%	V16
	16	15	15	16	16	65%	V16
	16	15	16	16	16	65%	V16
	16	16	16	16	16	65%	V16

FIG.5

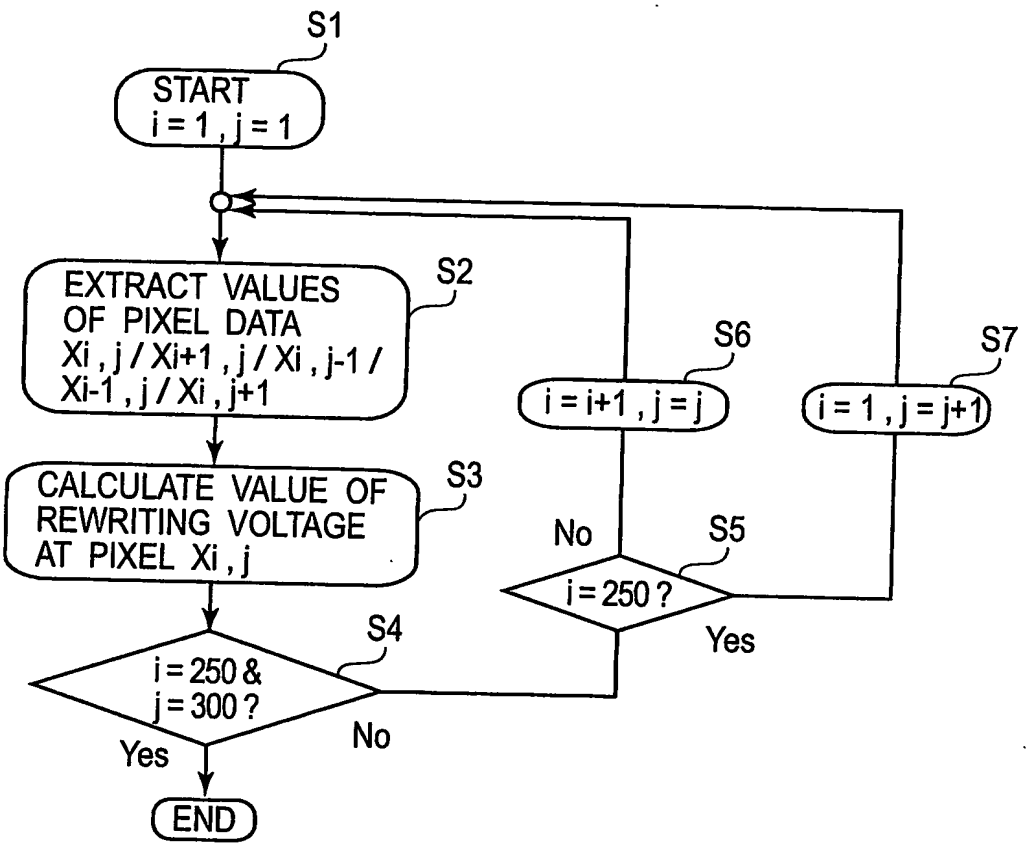

S1
START
i = 1 , j = 1
EXTRACT VALUES OF PIXEL DATA Xi , j / Xi+1 , j / Xi , j-1 / Xi-1 , j / Xi , j+1
S2
CALCULATE VALUE OF REWRITING VOLTAGE AT PIXEL Xi , j
S3
i = 250 & j = 300 ?
S4
Yes
No
END
i = i+1 , j = j
S6
i = 1 , j = j+1
S7
i = 250 ?
S5
No
Yes

FIG.6

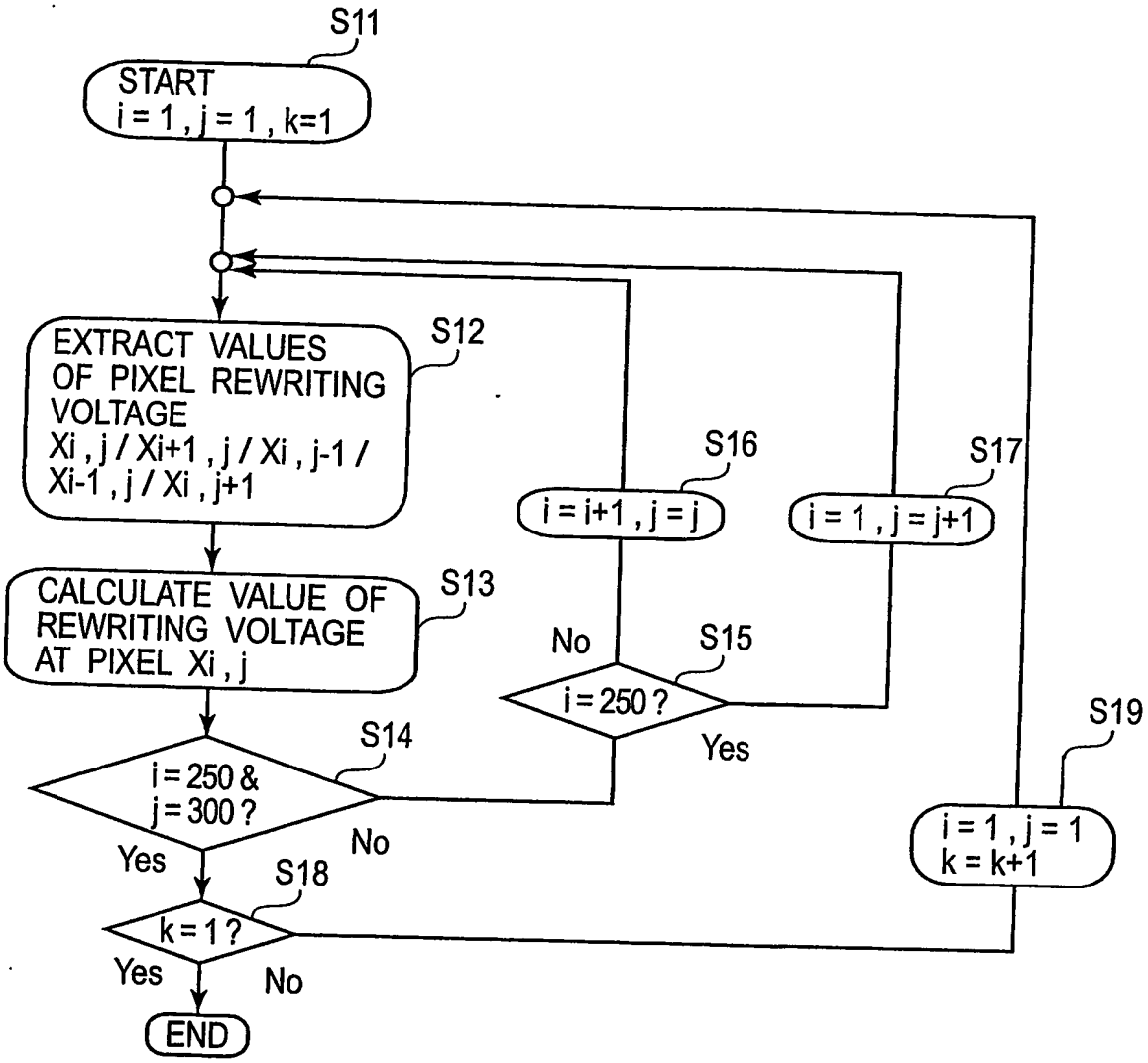
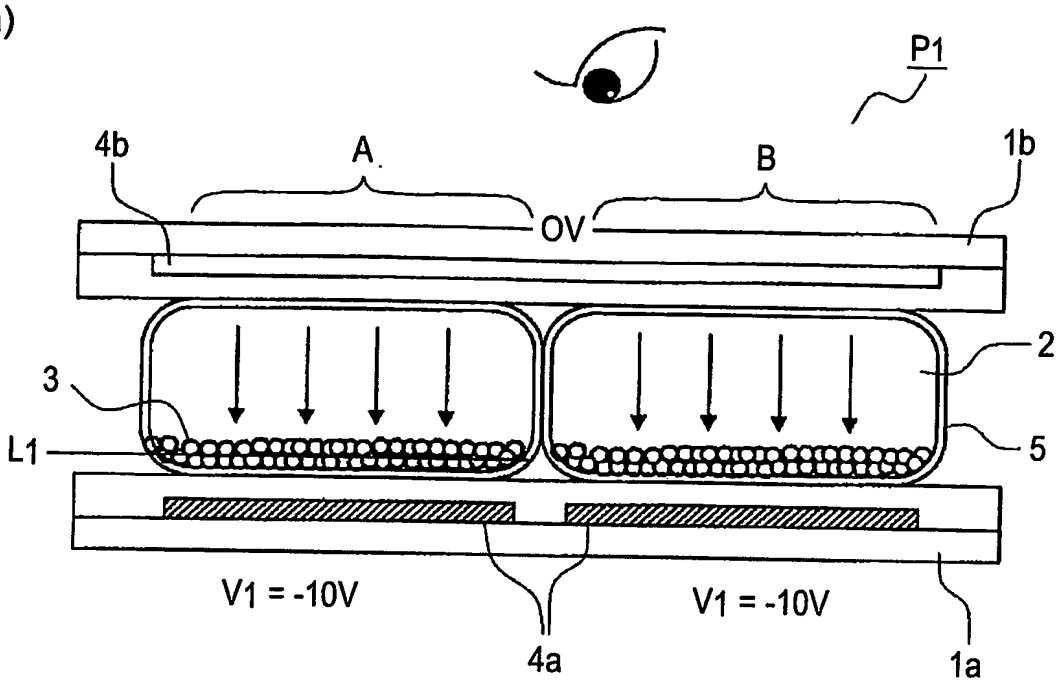

S11
START
i = 1 , j = 1 , k=1
S12
EXTRACT VALUES OF PIXEL REWRITING VOLTAGE
Xi , j / Xi+1 , j / Xi , j-1 / Xi-1 , j / Xi , j+1
S13
CALCULATE VALUE OF REWRITING VOLTAGE AT PIXEL Xi , j
S14
i = 250 & j = 300 ?
Yes
No
S15
i = 250 ?
No
Yes
S16
i = i+1 , j = j
S17
i = 1 , j = j+1
S18
k = 1 ?
Yes
No
S19
i = 1 , j = 1
k = k+1
END

FIG.7

(a)


P1
4b
A
B
1b
OV
2
3
L1
5
V1 = -10V
V1 = -10V
4a
1a

(b)

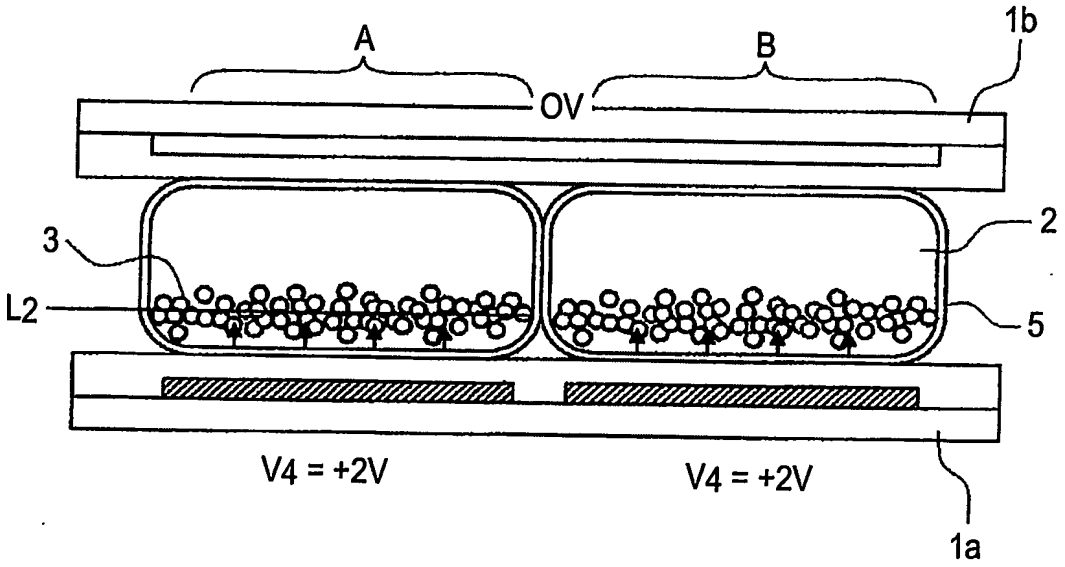

A
B
1b
OV
2
3
L2
5
V4 = +2V
V4 = +2V
1a

FIG.8

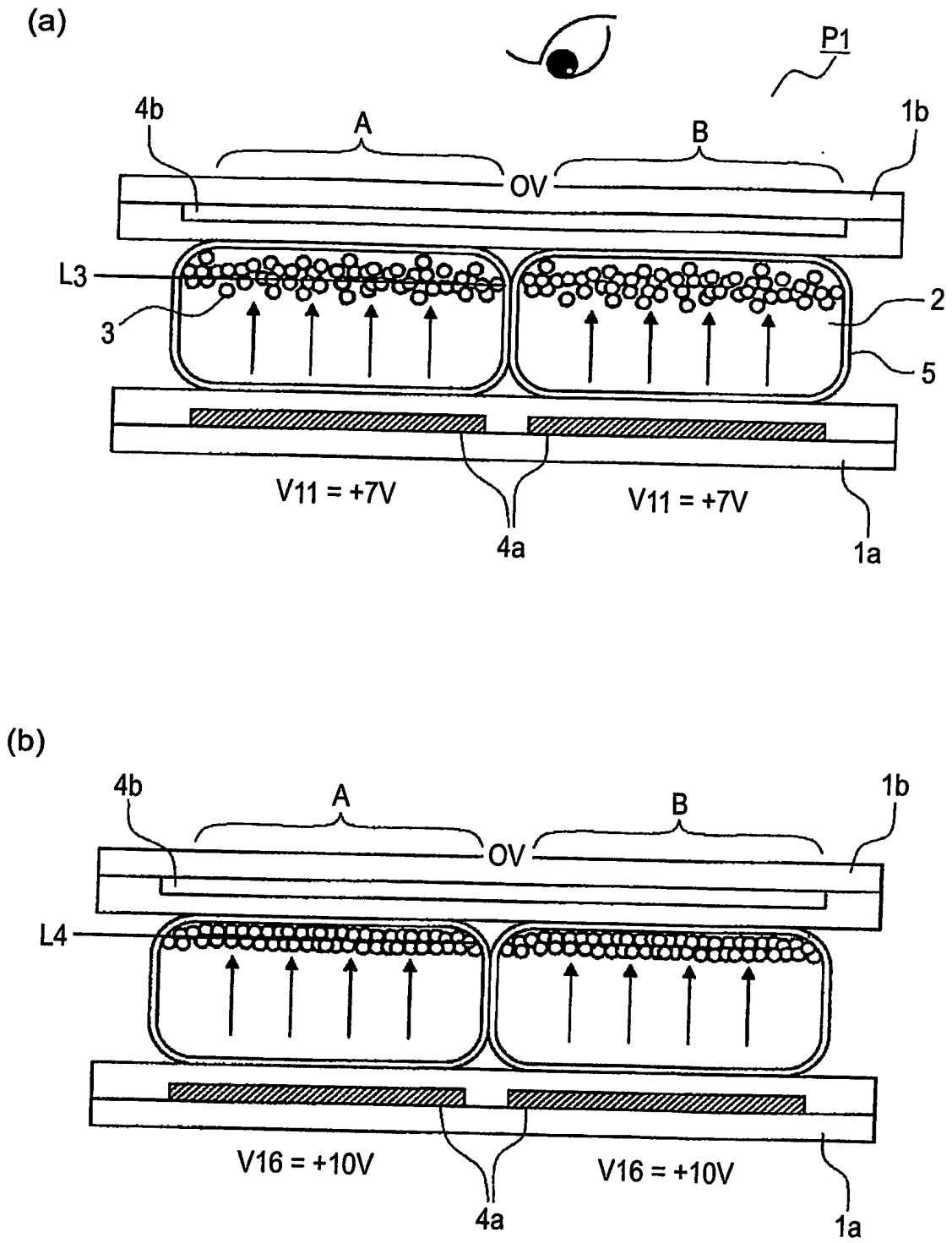
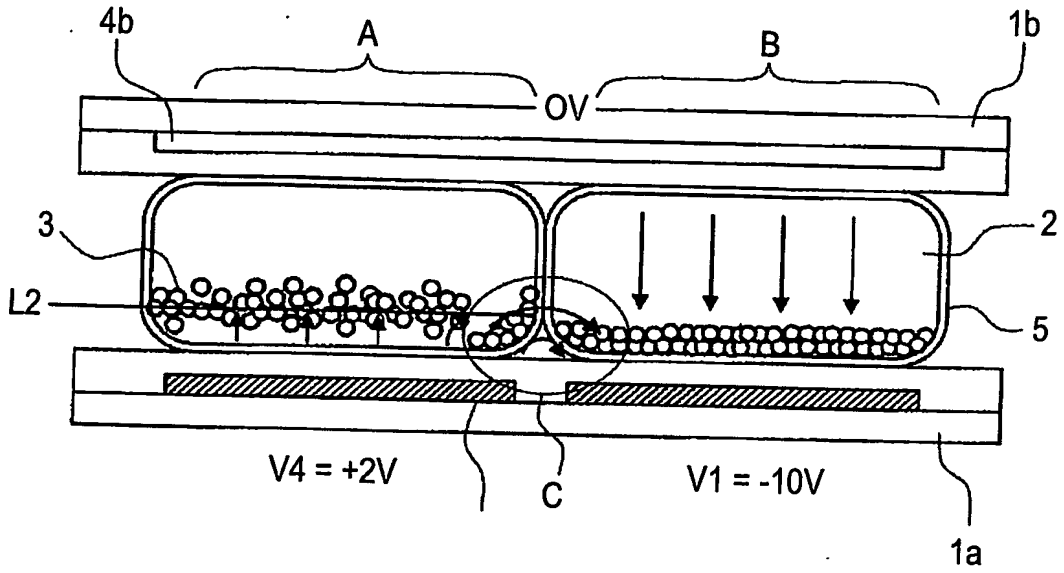

(a)
P1
4b
A
B
1b
OV
L3
3
2
5
V11 = +7V
V11 = +7V
4a
1a
(b)
4b
A
B
1b
OV
L4
V16 = +10V
V16 = +10V
4a
1a

FIG.9

(a)


4b
A
B
1b
OV
3
2
L2
5
V4 = +2V
C
V1 = -10V
1a

(b)

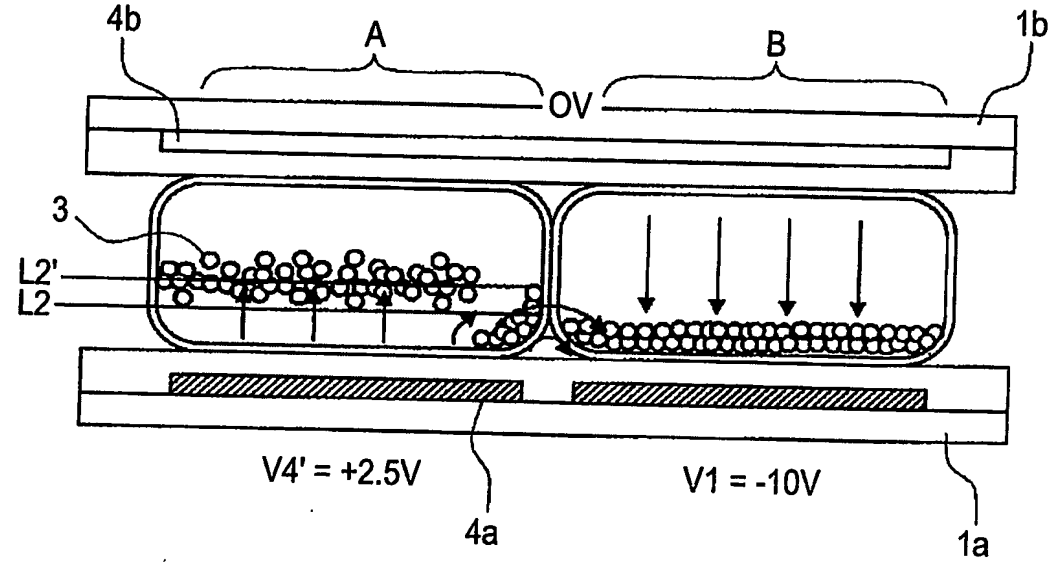

4b
A
B
1b
OV
3
L2'
L2
V4' = +2.5V
V1 = -10V
4a
1a

FIG. 10

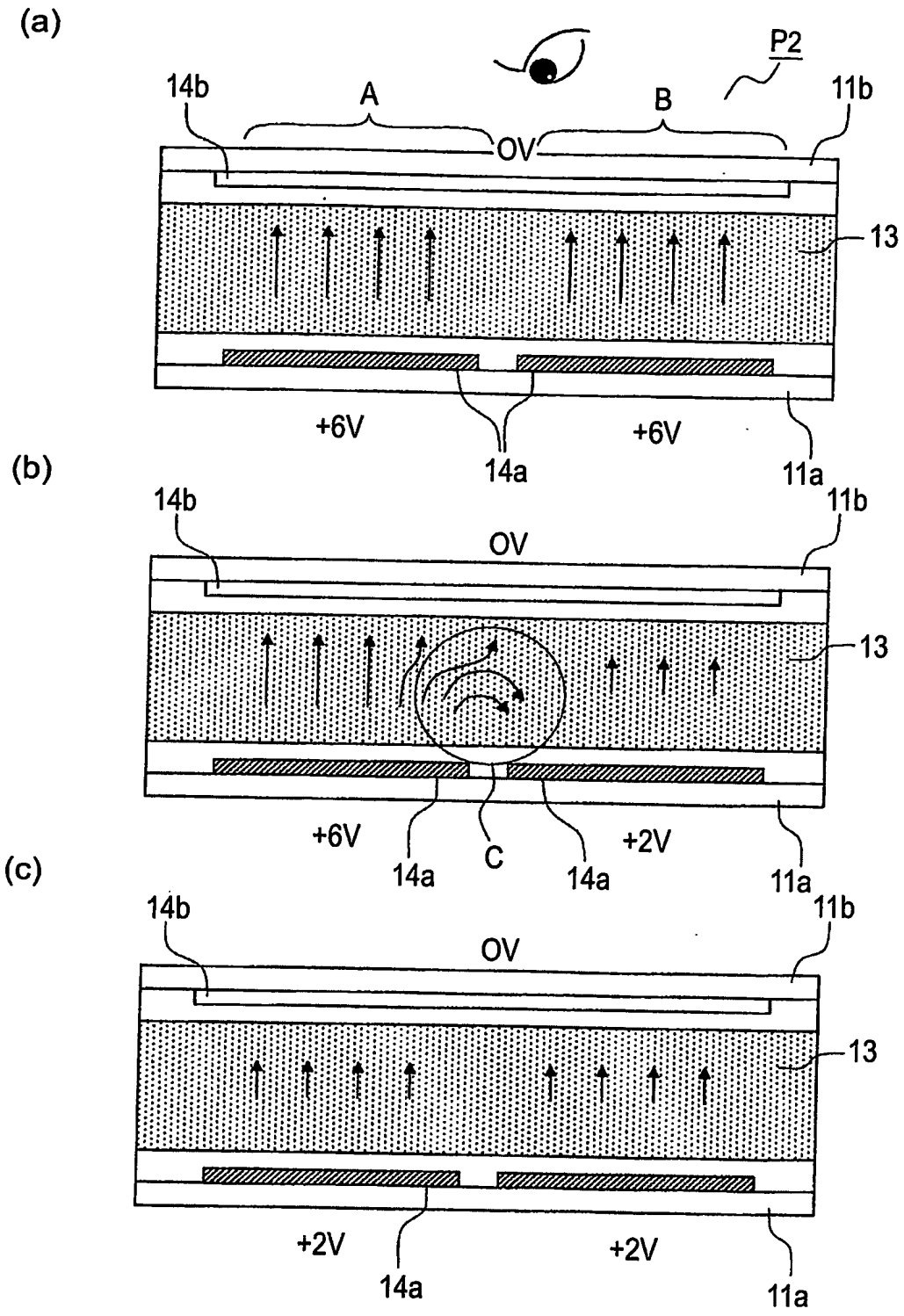
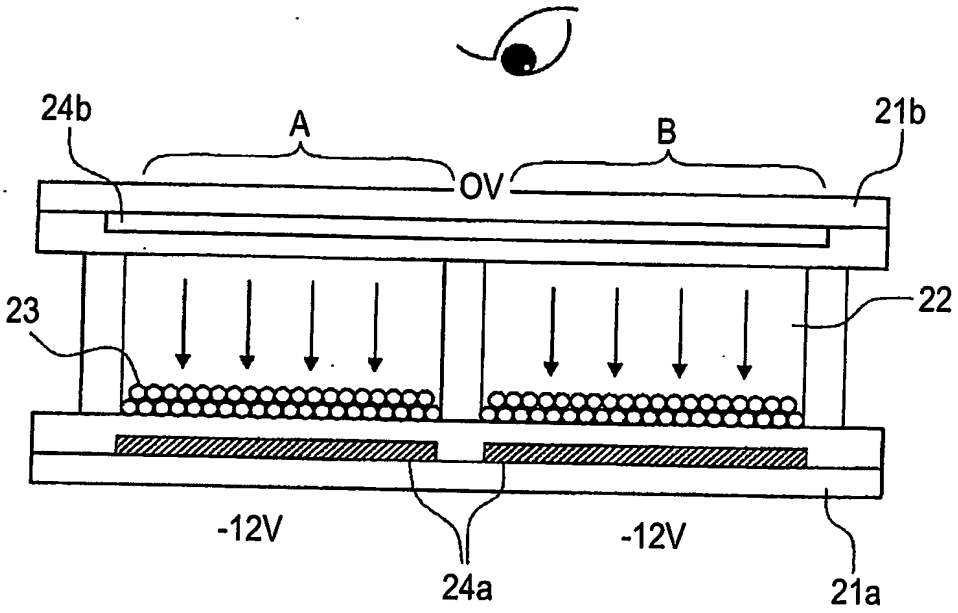

(a)
P2
14b
A
B
11b
OV
13
+6V
+6V
14a
11a
(b)
14b
11b
OV
13
+6V
C
+2V
14a
14a
11a
(c)
14b
11b
OV
13
+2V
+2V
14a
11a

FIG. 11

(a)


24b
A
B
21b
OV
23
22
-12V
-12V
24a
21a

(b)

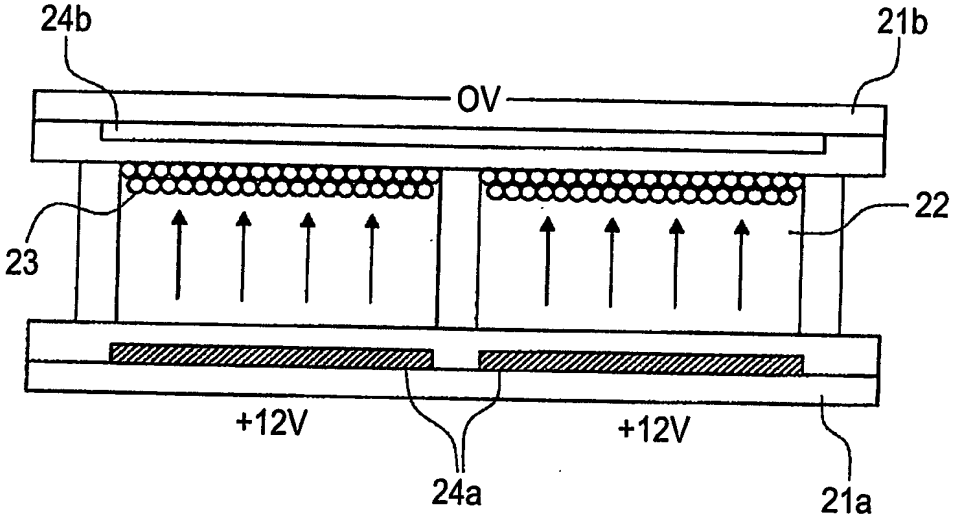

24b
21b
OV
23
22
+12V
+12V
24a
21a

FIG. 12

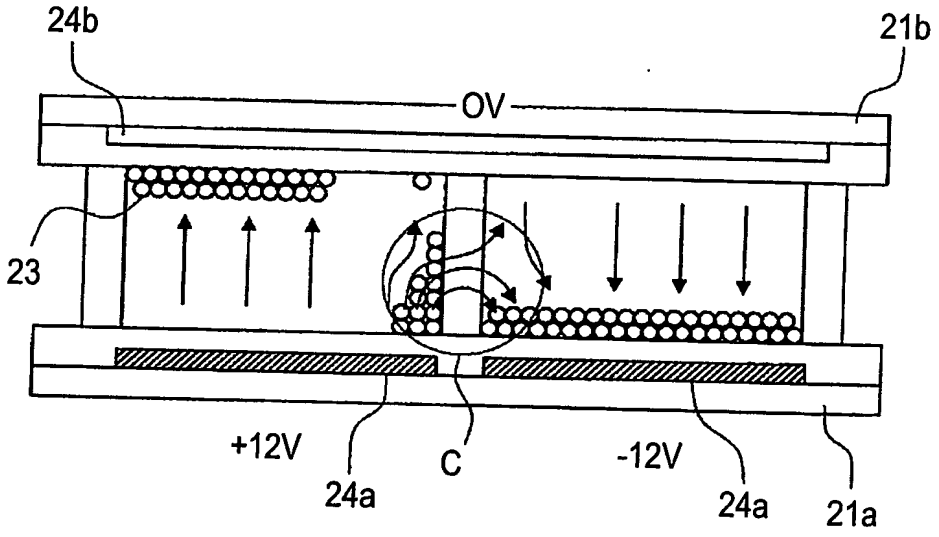


FIG. 13